

0060788

August 26, 2003

Mr. Steve Trent Fluor Hanford Inc. 825 Jadwin Avenue Richland, WA 99352

Reference:

P.O. #630

Eberline Services R3-07-015-7543, SDG (H2275

G H2275



Dear Mr. Trent:

Enclosed is the data report for one solid sample designated under SAF No. F03-006 received at Eberline Services on July 8, 2003. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion

Melion Mamm

Program Manager

MCM

Enclosure: Data Package

RECEIVED NOV 2 4 2003

**EDMC** 

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#### 1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H2275 was composed of one solid (soil) sample designated under SAF No. F03-006 with a Project Designation of: 200-PW-2/200-PW-4 OU – Borehole Soil Sampling.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

#### 2.0 ANALYSIS NOTES

## 2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

#### 2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

## 2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

### 2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

## 2.5 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

### 2.6 lodine-129 Analyses

No problems were encountered during the course of the analyses.

# 2.7 Isotopic Thorium Analyses

There was Th-230 activity in the method blank (0.33 pCi/g). The activity was less than the RDL (1.0 pCi/g) for Th-230. No other problems were encountered during the course of the analyses.

# 2.8 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

# Fluor Hanford Inc. **SDG H2275**

**Eberline Services** W.O. No. R3-07-015-7543

**Case Narrative** 

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## **Case Narrative Certification Statement**

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

Melissa C. Mannion

**Program Manager** 

# E B E R L I N E S E R V I C E S / R I C H M O N D SAMPLE DELIVERY GROUP H2275

SDG <u>7543</u> Contact <u>Melissa C. Mannion</u> Client Hanford
Contract No. 630
Case no SDG H2275

# SUMMARY DATA SECTION

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Melina	Mann

Prepared by

Meur Mamm

Reviewed by

#### SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

#### REPORT GUIDE

Client	Hanford
Contract	No. 630
Case no	SDG H2275

### ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

#### SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

#### PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

#### WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

#### METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

#### LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

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SAMPLE DELIVERY GROUP H2275

SDG <u>7543</u>
Contact <u>Melissa C. Mannion</u>

GUIDE, cont.

Client	Hanford
Contract	No. 630
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#### ABOUT THE DATA SUMMARY SECTION

#### DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

### MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

#### DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

#### METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

#### REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

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SAMPLE DELIVERY GROUP H2275

SDG <u>7543</u> Contact <u>Melissa C. Mannion</u>

# LAB SAMPLE SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2275</u>

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX LEV	/EL SAF NO	CHAIN OF CUSTODY	COLLECTED
R307015-01	B173T6	216-A-36B (C3248)	SOLID	F03-006	F03-006-192	07/01/03 08:30
R307015-02	Lab Control Sample		SOLID	F03-006		
R307015-03	Method Blank		SOLID	F03-006		
R307015-04	Duplicate (R307015-01)	216-A-36B (C3248)	SOLID	F03-006		07/01/03 08:30
R307015-05	Spike (R307015-01)	216-A-36B (C3248)	SOLID	F03-006		07/01/03 08:30

LAB SUMMARY
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SAMPLE DELIVERY GROUP H2275

SDG 7543 Contact <u>Melissa C. Mannion</u>

# QC SUMMARY

Client	<u>Hanford</u>
Contract	No. 630
Case no	SDG H2275

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	X SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS :		LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7543	F03-006-192	в173т6	SOLID	94.9	197.3 g		07/08/03	7	R307015-01	7543-001
	-	Method Blank	SOLID					•	R307015-03	7543-003
		Lab Control Sample	SOLID						R307015-02	7543-002
		Duplicate (R307015-01)	SOLID	94.9	197.3 g		07/08/03	7	R307015-04	7543-004
		Spike (R307015-01)	SOLID	94.9	197.3 g		07/08/03	7	R307015-05	7543-005

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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-QS</u>

Version <u>3.06</u>

Report date <u>08/26/03</u>

SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

### PREP BATCH SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2275</u>

			PREPARATION	PLANCHETS ANALYZED						QUALI-	
TEST	MATRIX	METHOD	BATCH	2σ %	CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG MS/ORIG	FIERS
Alpha	Spectros	сору						-		<del></del>	
NP	SOLID	Neptunium în Soil	7071-112	5.0	11			1	1	1/1	
тн	SOLID	Thorium, Isotopic in Soil	7071-112	5.0	1			1	1	1/1	
Beta	Counting										
SR	SOLID	Total Strontium in Soil	7071-112	10.0	1			1	1	1/1	
TC	SOLID	Technetium 99 in Soil	7071-112	10.0	1			1	1	1/1	
Gamma	Spectros	сору									
I	SOLID	Iodine 129 in Soil	7071-112	10.0	1			1	1	1/1	
Liqui	d Scintil	lation Counting									
С	SOLID	Carbon 14 in Soil	7071-112	10.0	1			1	_ 1	1/1	
Н	SOLID	Tritium in Soil	7071-112	10.0	1			1	1	1/1 1/1	×
NI_L	SOLID	Nickel 63 in Soil	7071-112	10.0	1			1	1	1/1	

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group. Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-PBS</u>

Version <u>3.06</u>

Report date <u>08/26/03</u>

SDG	7543	
Contact	<u>Melissa C.</u>	Mannion

# LAB WORK SUMMARY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Case no <u>SDG H2275</u>

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY SAF No	MATRIX	PLANCHET	TEST	SUF-	ANALYZED	REVIEWED	вү	METHOD
R307015-01	в173т6		7543-001	С		07/29/03	08/25/03	MWT	Carbon 14 in Soil
07/01/03	216-A-368 (C3248)	SOLID	7543-001	Н		08/22/03	08/25/03	MWT	Tritium in Soil
07/08/03	F03-006-192 F03-006		7543-001	1		08/13/03	08/25/03	MWT	Iodine 129 in Soil
01,00,05	103 000 172		7543-001	NI_L		08/13/03	08/25/03	MWT	Nickel 63 in Soil
			7543-001	NP		08/14/03	08/25/03	MWT	Neptunium in Soil
			7543-001	SR		08/15/03	08/25/03	MWT	Total Strontium in Soil
			7543-001	TC		08/18/03	08/25/03	MWT	Technetium 99 in Soil
			7543-001	TH		08/19/03	08/25/03	MWT	Thorium, Isotopic in Soil
307015-02	Lab Control Sample		7543-002	С		07/29/03	08/25/03	MWT	Carbon 14 in Soil
	•	SOLID	7543-002	н		08/22/03	08/25/03	MWT	Tritium in Soil
	F03-006		7543-002	I		08/14/03	08/25/03	MWT	Iodine 129 in Soil
			7543-002	NI_L		08/13/03	08/25/03	MWT	Nickel 63 in Soil
			7543-002	NP		08/14/03	08/25/03	MWT	Neptunium in Soil
			7543-002	SR		08/15/03	08/25/03	MWT	Total Strontium in Soil
			7543-002	TC		08/18/03	08/25/03	MWT	Technetium 99 in Soil
			7543-002	TH		08/19/03	08/25/03	MWT	Thorium, Isotopic in Soil
307015-03	Method Blank		7543-003	С		07/28/03	08/25/03	MWT	Carbon 14 in Soil
		SOLID	7543-003	Н		08/22/03	08/25/03	MWT	Tritium in Soil
	F03-006		7543-003	1		08/14/03	08/25/03	MWT	Iodine 129 in Soil
			7543-003	NI_L		08/13/03	08/25/03	MWT	Nickel 63 in Soil
			7543-003	NP		08/14/03	08/25/03	MWT	Neptunium in Soil
			7543-003	SR		08/15/03	08/25/03	MWT	Total Strontium in Soil
			7543-003	TC		08/19/03	08/25/03	MWT	Technetium 99 in Soil
			7543-003	TH		08/19/03	08/25/03	MWT	Therium, Isotopic in Soil
307015-04	Duplicate (R307015-01)		7543-004	С		07/29/03	08/25/03	MWT	Carbon 14 in Soil
07/01/03	216-A-36B (C3248)	SOLID	7543-004	Н		08/22/03	08/25/03	MWT	Tritium in Soil
07/08/03	F03-006		7543-004	1		08/15/03	08/25/03	MWT	Iodine 129 in Soil
			7543-004	NI_L		08/13/03	08/25/03	MWT	Nickel 63 in Soil
			7543-004	NP		08/14/03	08/25/03	MWT	Neptunium in Soil
			7543-004	SR		08/15/03	08/25/03	MWT	Total Strontium in Soil
			7543-004	TC		08/19/03	08/25/03	MWT	Technetium 99 in Soil
			7543-004	TH		08/19/03	08/25/03	MWT	Thorium, Isotopic in Soil
07/01/03 07/08/03	Spike (R307015-01) 216-A-36B (C3248) F03-006	SOLID	7543-005	Н		08/22/03	08/25/03	MWT	Tritium in Soil

WORK SUMMARY
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SAMPLE DELIVERY GROUP H2275

SDG <u>7543</u> Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client	<u>Hanford</u>
Contract	No. 630
Case no	SDG H2275

TEST	SAF No	COUNTS	OF TESTS BY SAM REFERENCE	PLE TYPE CLIENT MORE	RE BLANK	LCS	DUP SPII	E TOTAL
С	F03-006	Carbon 14 in Soil	C14_COX_LSC	1	1	1	1	4
H	F03-006	Tritium in Soil	906.0_H3_LSC	1	1	1	1 1	5
I	F03-006	Iodine 129 in Soil	I 129_SEP_LEPS_GS	1	1	1	1	4
NI_L	F03-006	Nickel 63 in Soil	NI63_LSC	1	1	1	1	4
NP	F03-006	Neptunium in Soil	NP237_LLE_PLATE_AEA	1	1	1	1	4
SR	F03-006	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	1	1	1	1	4
TC	F03-006	Technetium 99 in Soil	TC99_TR_SEP_LSC	1	1	1	1	4
н	F03-006	Thorium, Isotopic in Soil	THISO_IE_PLATE_AEA	1	1	1	1	4
TOTALS				8	. 8	8	8 1	33

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Lab id <u>EBRLNE</u> Protocol <u>Hanford</u> Version <u>Ver 1.0</u> Form <u>DVD-LWS</u> Version 3.06 Report date 08/26/03

7543-003

# METHOD BLANK

Method Blank

1	7543 Melissa C. Mannion	Client/Case no Contract	 SDG_H2275
Lab sample id Dept sample id		Client sample id Material/Matrix SAF No	 SOLID

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.003	0.17	0.29	400	U	н
Carbon 14	14762-75-5	-0.511	1.5	2.6	50	U	C
Nickel 63	13981-37-8	-0.434	1.3	2.2	30	U	NI_L
Total Strontium	SR-RAD	-0.059	0.15	0.34	1.0	U	SR
Technetium 99	14133-76-7	0.008	0.13	0.30	15	υ	TC
Thorium 228	14274-82-9	0.060	0.060	0.23		ប	TH
Thorium 230	14269-63-7	0.330	0.24	0.23	1.0		TH
Thorium 232	TH-232	0.030	0.060	0.23	1.0	U	TH
Neptunium 237	13994-20-2	0	0.10	0.15	1.0	υ	NP
Iodine 129	15046-84-1	-0.007	0.27	0.60	2.0	U	I

200-PW-2/200-PW-4 OU-Borehole Soil

QC-BLANK #45114

METHOD BLANKS
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7543-002

# LAB CONTROL SAMPLE

Lab Control Sample

SDG <u>754</u> Contact <u>Me</u>	43 lissa C. Mannion	Client/Case no Contract		SDG H2275
Lab sample id <u>R30</u> Dept sample id <u>75</u> 0		Material/Matrix	Lab Control Sample	SOLID

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC	30 LMTS (TOTAL)	PROTOCO LIMITS
Tritium	12.8	0.41	0.28	400		н	12.8	0.51	100	83-117	80-120
Carbon 14	1680	17	3.8	50		С	1740	70	97	84-116	80-120
Nickel 63	225	4.5	2.2	30		NI_L	228	9.1	99	84-116	80-120
Total Strontium	20.7	0.82	0.25	1.0		SR	20.9	0.84	99	83-117	80-120
Technetium 99	110	5.6	0.35	15		TC	109	4.4	101	82-118	80-120
Thorium 230	37.3	4.1	0.33	1.0	В	TH	40.8	1.6	91	82-118	80-120
Neptunium 237	20.7	2.0	0.14	1.0		NP	19.9	0.80	104	82-118	80-120
Iodine 129	123	1.4	1.6	2.0		1	116	4.6	106	83-117	80-120

200-PW-2/200-PW-4 OU-Borehole Soil

00-1	CS	#45113	

LAB CONTROL SAMPLES
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7543-004

DUPLICATE

B173T6

SDG <u>7543</u>		Client/Case no	Hanford SDG H2275
Contact Melissa C. Mannion		Contract	No. 630
DUPL I CATE	ORIGINAL		
Lab sample id <u>R307015-04</u>	Lab sample id <u>R307015-01</u>	Client sample id	B173T6
ept sample id <u>7543-004</u>	Dept sample id <u>7543-001</u>	Location/Matrix	216-A-368 (C3248) SOLIC
	Received <u>07/08/03</u>	Collected/Weight	07/01/03 08:30 197.3 g
% solids 94.9	% solids <u>94.9</u>	Custody/SAF No	F03-006-192 F03-006

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCî/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3 <i>o</i> TOT	PROT
Tritium	0.102	0.17	0.28	400	U	н	0.022	0.17	0.28	U	-		
Carbon 14	-1.08	1.5	2.6	50	U	С	1.24	1.9	3.1	U	-		
Nickel 63	-0.242	1.4	2.3	30	U	NI_L	0	1.3	2.2	U	-		
Total Strontium	-0.018	0.15	0.31	1.0	U	SR	0.052	0.17	0.32	U	-		
Technetium 99	0.025	0.14	0.38	15	U	TC	0.034	0.15	0.37	U	-		
Thorium 228	0.330	0.20	0.25			TH	0,213	0.26	0.33	U	43	182	
Thorium 230	0.592	0.27	0.25	1.0	В	TH	0.935	0.43	0.33	В	45	100	
Thorium 232	0.165	0.20	0.25	1.0	U	TH {	0.425	0.26	0.33		88	167	
Neptunium 237	0	0.12	0.18	1.0	U	NP	0.040	0.081	0.12	U	-		
Iodine 129	-0.053	0.41	0.92	2.0	U	1	0.073	0.39	0.88	U	-		

200-PW-2/200-PW-4 OU-Borehole Soil

C-DUP#1	45115	

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7543-005

### MATRIX SPIKE

B173T6

SDG 7543		Client/Case no <u>Hanford</u> SDG H2275
Contact Melissa C. Mannion		Contract <u>No. 630</u>
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R307015-05</u>	Lab sample id <u>R307015-01</u>	Client sample id <u>B173T6</u>
Dept sample id <u>7543-005</u>	Dept sample id <u>7543-001</u>	Location/Matrix 216-A-36B (C324B) SOLID
	Received <u>07/08/03</u>	Collected/Weight <u>07/01/03 08:30 197.3 g</u>
% solids <u>94.9</u>	% solids <u>94.9</u>	Custody/SAF No <u>F03-006-192</u> <u>F03-006</u>

ANALYTE		2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS			2σ ERR pCi/g	ORIGINAL pCi/g				
Tritium	45.1	0.71	0.27	400	х	Н	49.7	2.0	0.022	0.17	91	85-115	60-140

200-PW-2/200-PW-4 OU-Borehole Soil

QC-MS#1 45116
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MATRIX SPIKES
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7543-001

### DATA SHEET

B173T6

		7543 Melissa C. Mannion	Client/Case no Contract	
l .	sample id sample id Received % solids	07/08/03	Collected/Weight	B173T6  216-A-36B (C3248) SOLID  07/01/03 08:30 197.3 q  F03-006-192 F03-006

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.022	0.17	0.28	400	บ	Н
Carbon 14	14762-75-5	1.24	1.9	3.1	50	Ū	C
Nickel 63	13981-37-8	0	1.3	2,2	30	U	NI_L
Total Strontium	SR-RAD	0.052	0.17	0.32	1.0	U	SR
Technetium 99	14133-76 <b>-</b> 7	0.034	0.15	0.37	15	U	TC
Thorium 228	14274-82-9	0.213	0.26	0.33		U	TH
Thorium 230	14269-63-7	0.935	0.43	0.33	1.0	В	TH
Thorium 232	TH-232	0.425	0.26	0.33	1.0		TH
Neptunium 237	13994-20-2	0.040	0.081	0.12	1.0	U	NP
Iodine 129	15046-84-1	0.073	0.39	0.88	2.0	U	I

200-PW-2/200-PW-4 OU-Borehole Soil

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SAMPLE DELIVERY GROUP H2275

Test NP Matrix SOLID
SDG 7543
Contact Melissa C. Mannion

### LAB METHOD SUMMARY

NEPTUNIUM IN SOIL ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2275

RESULTS

LAB SAMPLE ID	RAW SUF- TEST FIX PLANCHET	CLIENT SAMPLE ID	Neptunîum 237	
Preparation	batch 7071-112			
R307015-01	7543-001	в17316	U	
R307015-02	7543-002	LCS (QC ID=45113)	ok	
R307015-03	7543-003	BLK (QC ID=45114)	U	
R307015-04	7543-004	Duplicate (R307015-01)	- U	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW S		T SAMPLE IÐ	MDA pCi/g		PREP FAC	DILU-	YIELD %	EFF %		 		PREPARED	ANAL- YZED	DETECTOR
Preparation	batch	7071-112	2σ prep error	5.0 %	Reference	Lab	Notebool	7071	pg.	112					
R307015-01		B173T	5	0.12	0.500			60		105		44	08/13/03	08/14	SS-055
R307015-02		LCS (	C ID=45113)	0.14	0.500			54		106			08/13/03	08/14	SS-056
R307015-03		BLK (	QC ID=45114)	0.15	0.500			50		106			08/13/03	08/14	SS-057
R307015-04		•	cate (R307015-01) GC ID=45115)	0.18	0.500			44		106		44	08/13/03	08/14	\$\$-058
Nominal valu	ues and	d limits f	rom method	1.0	0.500			20-10	5	100		180			

PROCEDURES	REFERENCE CP-061	NP237_LLE_PLATE_AEA  Determinatioin of Moisture Content in Solid
		Samples, rev 1
1	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-930	Neptunium from Solids and Water by Extraction
i		Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES ± 2 SD MDA 0.15 ± 0.050 FOR 4 SAMPLES YIELD 52 ± 13

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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>08/26/03</u>

SAMPLE DELIVERY GROUP H2275

Test TH Matrix SOLID
SDG 7543
Contact Melissa C. Mannion

# LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H2275

#### RESULTS

Preparation batch	7071-112			****
R307015-01	7543-001	в173т6	0.935	
R307015-02	7543-002	LCS (QC ID=45113)	ok	
R307015-03	7543-003	BLK (QC ID=45114)	0.330	
R307015-04	7543-004	Duplicate (R307015-01)	ok	

#### METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST		CLIENT	SAMPLE ID	MAX pCi		ALIQ g		DILU-	YIELD	_			DRIFT KeV	-•	PREPARED	ANAL- YZED	DETECTOR
Preparation	batch	707	1-112	2σ prep erro	or 5.0 %	Ref	erence	Lab	Notebool	7071	pg.	112						
R307015-01			B173T6		0.3	33	0.250			76		152			49	08/19/03	08/19	ss-028
R307015-02			LCS (QC	ID=45113)	0.3	33	0.250			83		141				08/19/03	08/19	ss-029
R307015-03			BLK (QC	ID=45114)	0.	23	0.250			90		201				08/19/03	08/19	ss-035
R307015-04			•	ite (R307015-01 : ID=45115)	i) 0.	25	0.250			84		201	•		49	08/19/03	08/19	ss-036
Nominal valu	ues ar	nd lis	nits fro	om method	1.	0	0.250			20-10	 5	150			180			

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
İ	CP-061	Determinatioin of Moisture Content in Solid
		Samples, rev 1
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-900	Thorium in Water and Dissolved Solid Samples by
		Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 7
L		

AVERAGES ± 2 SD MDA 0.28 ± 0.11 FOR 4 SAMPLES YIELD 83 ± 11

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SAMPLE DELIVERY GROUP H2275

Test	SR Ma	tri	SOL ID	
SDG	7543			
Contact	Melissa	Ç.	Mannion	

# LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Client	<u>Hanford</u>
Contract	No. 630
Contract	SDG H2275

RESULTS

Preparation batch	7071-112		
R307015-01	7543-001	B17316	U
R307015-02	7543-002	LCS (QC ID=45113)	ok
R307015-03	7543-003	BLK (QC ID=45114)	U
R307015-04	7543-004	Duplicate (R307015-01)	- U

METHOD PERFORMANCE

LAB SAMPLE ID	RAW :	SUF- FIX CLIENT	SAMPLE ID	MDA pCi/s		PREP FAC	DILU-	YIELD %	EFF %		FWHM keV			PREPARED	ANAL- YZED	DETECTOR
Preparation	batch	7071-112	2σ prep error	10.0 %	Reference	Lab	Notebool	 k 7071	pg.	112		•				_
R307015-01		B173T6		0.32	1.00			86		100			45	08/15/03	08/15	GRB-224
R307015-02		LCS (Q	C ID=45113)	0.25	1.00			84		100				08/15/03	08/15	GRB-217
R307015-03		BLK (Q	C ID=45114)	0.34	1.00			79		100				08/15/03	08/15	GRB-230
R307015-04		•	ate (R307015-01) C ID=45115)	0.31	1.00			92		100			45	08/15/03	08/15	GRB-232
Nominal valu	ues and	d limits fr	om method	1.0	1.00	_		30-10	5	100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-061	Determination of Moisture Content in Solid
		Samples, rev 1
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-381	Strontium in Solids, rev 1

AVERAGES ± 2 SD	MDA	0.30	±	0.077
FOR 4 SAMPLES	YIELD	85	±	11

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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>08/26/03</u>

SAMPLE DELIVERY GROUP H2275

Test TC Matrix SOLID
SDG 7543
Contact Melissa C. Mannion

# LAB METHOD SUMMARY

TECHNETIUM 99 IN SOIL
BETA COUNTING

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2275</u>

RESULTS

SAMPLE ID TES	T FIX PLANCHET	CLIENT SAMPLE ID	99		
Preparation bat	ch 7071-112				
R307015-01	7543-001	В173т6	IJ		
R307015-02	7543-002	LCS (QC ID=45113)	ok		
R307015-03	7543-003	BLK (QC ID=45114)	U		•
R307015-04	7543-004	Duplicate (R307015-01)	-	U	

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST		NT SAMPLE ID	MDA pCi/		PREP FAC	DILU-	YIELD %	EFF %		 		PREPARED	ANAL - YZED	DETECTOR
Preparation	batch	7071-112	2σ prep er	ror 10.0 %	Reference	Lab	Notebool	< 7071	pg.	112					
R307015-01		8173	T6	0.3	7 1.02			94	-	100		48	08/14/03	08/18	GRB-221
R307015-02		LCS	(QC ID=45113)	0.3	5 1.00			97		100			08/14/03	08/18	GRB-222
R307015-03		BLK	(QC ID=45114)	0.30	1.00			93		169			08/14/03	08/19	GRB-232
R307015-04		•	icate (R307015- (QC ID=45115)	01) 0.38	3 1.02			92		100		49	08/14/03	08/19	GRB-221
Nominal valu	ues an	d limits	from method	15	1.00			20-105	 ;	50	 	180			

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
	CP-021	Preparation of Tc-99m Tracer, rev 2
Ì	CP-002	Q.C. Preparation, rev 4
	CP-003	Addition of Carriers and Tracers, rev 5
1	CP-542	Technetium-99 Purification (Soil) by Extraction
		Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 7
<u> </u>		

AVERAGES ± 2 SD MDA 0.35 ± 0.071 FOR 4 SAMPLES YIELD 94 ± 4

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SAMPLE DELIVERY GROUP H2275

Test I Matrix SOLID

SDG 7543

Contact Melissa C. Mannion

#### LAB METHOD SUMMARY

IODINE 129 IN SOIL GAMMA SPECTROSCOPY

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2275</u>

RESULTS

IAB RAW SUF-

SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Iodine 129

Preparation batch 7071-112
R307015-01 7543-001 B173T6 U
R307015-02 7543-002 LCS (QC ID=45113) ok
R307015-03 7543-003 BLK (QC ID=45114) U
R307015-04 7543-004 Duplicate (R307015-01)

Nominal values and limits from method 200-PW-2/200-PW-4 OU-Borehole Soil

RDLs (pCi/g)

2.0

U

METHOD PERFORMANCE

	RAW Test		CLIENT	SAMPLE ID	MDA pCi/g	•••		DILU-	YIELD %			FWHM keV			PREPARED	ANAL- YZED	DETECTOR
Preparation	batch	707	1-112	2σ prep error	10.0 %	Reference	Lab	Notebool	c 7071	pg.	112						
R307015-01			в173т6		38.0	1.02			66		895			43	08/13/03	08/13	XSPEC-004
R307015-02			LCS (QC	ID=45113)	1.6	1.00			94		608				08/13/03	08/14	XSPEC-004
R307015-03			BLK (QC	ID=45114)	0.60	1.00			94		969				08/13/03	08/14	XSPEC-004
R307015-04			•	ite (R307015-01) : ID=45115)	0.92	1.02			65		923			45	08/13/03	08/15	XSPEC-004
Nominal valu	es ar	nd lîn	nits fro	om method	2.0	1.00			20-10	5	300		**	180			

PROCEDURES REFERENCE I 129\_SEP\_LEPS\_GS

CP-024

Iodine-129, Sample Dissolution, rev 3

CP-530

Iodine-129 Purification, rev 0

AVERAGES ± 2 SD MDA 1.0 ± 0.85 FOR 4 SAMPLES YIELD 80 ± 33

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SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

#### LAB METHOD SUMMARY

CARBON 14 IN SOIL
LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. 630
Contract	SDG_H2275

RESULTS

RAW SUF-LAB Carbon 14 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Preparation batch 7071-112 R307015-01 7543-001 B173T6 U ok R307015-02 7543-002 LCS (QC ID=45113) R307015-03 7543-003 BLK (QC ID=45114) U u 7543-004 Duplicate (R307015-01) R307015-04 Nominal values and limits from method 50 RDLs (pCi/g) 200-PW-2/200-PW-4 OU-Borehole Soil

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF- FIX CLI	ENT S	AMPLE ID	MDA pCi/s		PREP FAC	DILU-	YIELD			FWHM keV	 	PREPARED	ANAL- YZED	DETECTOR
Preparation	batch	7071-11	2	2σ prep error	10.0 %	Reference	Lab	Notebook	7071	pg.	112					
R307015-01		B17.	<b>3</b> T6		3.1	0.301			100		100		28	07/28/03	07/29	LSC-007
R307015-02		LCS	(QC	ID=45113)	3.8	0.366			100		44			07/28/03	07/29	LSC-007
R307015-03		BLK	(QC	ID=45114)	2.6	0.366			100		100			07/28/03	07/28	LSC-007
R307015-04		Dup		e (R307015-01) ID=45115)	2.6	0.366			100		100		28	07/28/03	07/29	LSC-007
Nominal valu	ues ar	d limits	from	method	50	0.366					50		 180		-	

PROCEDURES REFERENCE C14\_COX\_LSC

CP-251 Tritium/Carbon-14 Oxidation, rev 5

AVERAGES ± 2 SD MDA 3.0 ± 1.1

FOR 4 SAMPLES YIELD 100 ± 0

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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

Form <u>DVD-LMS</u>

Version <u>3.06</u>

Report date <u>08/26/03</u>

SAMPLE DELIVERY GROUP H2275

Test H Matrix SOLID
SDG 7543
Contact Melissa C. Mannion

# LAB METHOD SUMMARY IRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client <u>Hanford</u>
Contract <u>No. 630</u>
Contract <u>SDG H2275</u>

RESULTS

Preparation	batch 7071	-112			
R307015-01		7543-001	B173T6	U	
R307015-02	;	7543-002	LCS (QC ID=45113)	ok	
R307015-03	7	7543-003	BLK (QC ID=45114)	U	
R307015-04	7	7543-004	Duplicate (R307015-01)	-	U
R307015-05	7	7543-005	Spike (R307015-01)	ok	Х

METHOD PERFORMANCE

	RAW SUF- TEST FIX CLIEN	T SAMPLE ID	MDA pCi/g	ALIQ 9	PREP FAC	DILU- TION	YIELD %			DRIFT KeV		PREPARED	ANAL- YZED	DETECTO
Preparation	batch 7071-112	2σ prep error	10.0 %	Reference	Lab	Noteboo	k 7071	pg.	112					
R307015-01	в173т	6	0.28	20.6			33		120		52	08/15/03	08/22	LSC-006
R307015-02	LCS (	QC ID=45113)	0.28	20.0			33		120			08/15/03	08/22	LSC-006
R307015-03	BLK (	QC ID=45114)	0.29	20.0			33		120			08/15/03	08/22	LSC-006
R307015-04	*	cate (R307015-01) QC ID=45115)	0.28	21.1			32		120		52	08/15/03	08/22	LSC-006
R307015-05		(R307015-01) QC ID=45116)	0.27	20.8			35		120		52	08/15/03	08/22	LSC-006
Nominal valu	es and limits f	rom method	400	20.0					25		180	-		

PROCEDURES	REFERENCE CP-216	906.0_H3_LSC Tritium in Solid Samples by Azeotropic
		Distillation, rev 6

AVERAGES ± 2 SD	MDA	0.28	±	0.014
FOR 5 SAMPLES	YIELD .	<u>33</u>	ŧ	

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Lab id <u>EBRLNE</u>

Protocol <u>Hanford</u>

Version <u>Ver 1.0</u>

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Report date <u>08/26/03</u>

SAMPLE DELIVERY GROUP H2275

Test NI L Matrix SOLID SDG 7543

Contact Melissa C. Mannion

# LAB METHOD SUMMARY

NICKEL 63 IN SOIL LIQUID SCINTILLATION COUNTING

Client Hanford Contract No. 630 Contract SDG H2275

RESULTS

RAW SUF-LAB

Nickel 63 CLIENT SAMPLE ID SAMPLE ID TEST FIX PLANCHET Preparation batch 7071-112 R307015-01 7543-001 B173T6 U 7543-002 LCS (QC ID=45113) ok R307015-02 R307015-03 7543-003 BLK (QC ID=45114) U 7543-004 U Duplicate (R307015-01) R307015-04

Nominal values and limits from method

30

RDLs (pCi/g)

200-PW-2/200-PW-4 OU-Borehole Soil

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF- FIX CL	IENT	SAMPLE ID	MDA pCi/s	,	PREF FAC	DILU-	Y1ELD			FWHM keV	 	PREPARED	ANAL- YZED	DETECTOR
Preparation	batch	7071-1	12	2σ prep error	10.0 %	Reference	Lab	Notebool	7071	pg.	112					
R307015-01		В1	7316		2.2	0.500			90		100		43	08/12/03	08/13	LSC-006
R307015-02		LC	s (QC	ID=45113)	2.2	0.500			91		100			08/12/03	08/13	LSC-006
R307015-03		BL	K (QC	ID=45114)	2.2	0.500			89		100			08/12/03	08/13	LSC-006
R307015-04		Du	•	te (R307015-01) ID=45115)	2.3	0.500			80		100		43	08/12/03	08/13	LSC-006
Nominal valu	ues an	d limit	s fro	m method	30	0.500			30-10	5	50		180		-	

PROCEDURES	REFERENCE	NI63_LSC
	CP~061	Determinatioin of Moisture Content in Solid
		Samples, rev 1
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 2
ļ.	CP-280	Nickel-63 Purification, rev 0
i		

MDA 2.2 ± 0.10 AVERAGES ± 2 SD FOR 4 SAMPLES YIELD 88 ± 10

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SAMPLE DELIVERY GROUP H2275

SDG <u>7543</u>
Contact <u>Melissa C. Mannion</u>

#### REPORT GUIDE

Client	Hanf	ord
Contract	No.	630
Case no	SDG	H2275

#### SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- \* LAB SAMPLE ID is the lab's primary identification for a sample.
- \* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- \* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- \* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

\* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanford	
Contract	No. 630	
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#### PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- \* The preparation batches are shown in the same order as the Method Summary Reports are printed.
- \* Only analyses of planchets relevant to the SDG are included.
- \* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- \* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

#### REPORT GUIDE

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#### WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- \* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- \* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- \* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- \* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- \* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- \* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hani	ord_	
Contract		•	
Case no	SDG	H2275	

#### DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- \* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- \* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- \* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- \* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- \* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanford	
Contract	No. 630	
Case no	SDG_H2275	

#### DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
- H Similar to 'L' except the recovery was high.
- P The RESULT is 'preliminary'.
- X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

\* An MDA is underlined if it is bigger than its RDL.

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SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanford
Contract	No. 630
Case no	SDG_H2275

### DATA SHEET

- \* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- \* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- \* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hanford
Contract	No. 630
Case no	SDG_H2275

#### LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- \* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- \* The first, computed limits for the recovery reflect:
  - 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- \* The second limits are protocol defined upper and lower QC limits for the recovery.
- \* The recovery is underlined if it is outside either of these ranges.

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SUMMARY DATA SECTION
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SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

#### REPORT GUIDE

Client	Hani	Ford	
Contract	No.	630	
Case no	SDG	H2275	

#### DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

\* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

\* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTs divided by their average expressed as a percent.

If both RESULTs are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

\* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTs prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTs. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- \* The second limit for the RPD is the larger of:
  - 1. A fixed percentage specified in the protocol.

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SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

GUIDE, cont.

_	<del>==</del>	
Client	Hanford	
Contract	No. 630	
Case no	SDG H2275	

#### DUPLICATE

- 2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.
- $\mbox{\scriptsize \star}$  The RPD is underlined if it is greater than either limit.
- \* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

\* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

REPORT GUIDE

Client	Hani	ford	 
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Case no	SDG	H2275	 

#### MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

\* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTs are underlined.

\* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.
- \* The first, computed limits for the recovery reflect:
  - 1. The errors of the two RESULTs, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

- 2. The error of ADDED.
- 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- \* The second limits are protocol defined upper and lower QC limits

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SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

GUIDE, cont.

Client	<u> Hanford</u>	
Contract	No. 630	
	SDG_H2275	

#### MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

\* The recovery is underlined (out of spec) if it is outside either of these ranges.

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SAMPLE DELIVERY GROUP H2275

SDG <u>7543</u>
Contact <u>Melissa C. Mannion</u>

#### REPORT GUIDE

Client	<u>Hanford</u>
Contract	No. 630
Case no	SDG_H2275

#### METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

\* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

\* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

\* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- \* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- \* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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#### EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

GUIDE, cont.

Client	Han	ford _	
Contract	No.	630	
Case no	SDG	H2275	

#### METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- \* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- \* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- \* Aliquots are underlined if less than the nominal value specified for the method.
- \* Prepareation factors are underlined if greater than the nominal value specified for the method.
- \* Dilution factors are underlined if greater than the nominal value specified for the method.
- \* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- \* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- \* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

REPORT GUIDES
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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

#### EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

GUIDE, cont.

Client	Han	ford _	
Contract			
Case no	SDG	H2275	

#### METHOD SUMMARY

- \* Count times are underlined if less than the nominal value specified for the method.
- \* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- \* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- \* Days Held are underlined if greater than the holding time specified in the protocol.
- \* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1÷3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

#### EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2275

SDG 7543
Contact Melissa C. Mannion

GUIDE, cont.

Client	Hanford
Contract	No. 630
Case no	SDG_H2275

#### METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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Page 35

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/26/03

Project Designation 200-PW-2/200-PW-4 OU - Borehole Soil Sampling  Ice Chest No.  ERC 01-059	Company C LC Hulstr Sampling L 216-A-36 Field Logbo HNF-N-3 Offsite Prop	rom .ocation 6B (C3248) - 12.5-1: ook No. 1361	Telepho 373-3 5' H	928 227 co.		(7543	\	Project Coordina TRENT, SJ SAF No.	Pri	ice Code	8N	Data Turi	taround
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ERC 01-059 Shipped To	HNF-N-3	3361					<u> </u>	F03-006	Air	r Quality		45 1	ays
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POSSIBLE SAMPLE HAZARDS/REMARKS		=			l								
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Special Handling and/or Storage	Ту	pe of Container	aG	<b>_</b>	G	аG				<del></del>			
None	No	of Container(s)	1		1	1							
		Volume	60m/	601	mL	60mL					ļ ļ		
SAMPLE ANALYSIS			NO2/103 - 353.2 Oil & Grease 413.1 Chrimium Hep 7196	, lostro	cial	Tritium - H3							
Sample No. Matrix * Sample	Date	Sample Time				\$ 							
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CHAIN OF POSSESSION Sig	n/Print Nan	nes		٠	SPEC	AL INSTR	UCTIO	DNS		Age	- 7-1	-05	Matrix *
	-026 n	H2 7-1	nte/Time 15 -3 nte/Time	7/2 180	compo	unds from W.	PH.D.	ion limit of 50.0 pCi/g : nalysis. FH acknowled adl characteristics.	for C-14. Regiges that hold	port kerosene ling times (les	and diesel ran is than 14 days	ge s) may not	S=Soil SE=Sediment SO=Solid SI=Sludge
	By/Stored In By/Stored In		1072	13 I		chnetium-99; ickel-63; Nep		n-89,90 - Total Sr; Iso 237	topic Thoriu	m (Thorium-2	232}; Carbon-	14; Iodine-	W = Water O=Oil A=Air
THU WOODY AND WON TO BE	AHLBE By/Stored In	RG Raier	7.2.c	>3				JRC	~ V50				DS=Drum Solids DL=Drum Liquids T=Tissue
DEAHIDEDERFILE 7.203 /A	3728		5 //3	٥	Rec	ceive	e.	By: JKlas ne 7/8/03			Com par berline	y: Service	WI-Wipe L-Liquid V-Vegetation X-Other
Relinquished By/Removed From ERC Date/Time 1000 Received	By/Stored In	Da	nte/Time		2	ate, 1	Tim	ne 7/8/a	9.5	3 <i>0</i>			
LABORATORY Received By SECTION	EX		Т	îtle	L <u> </u>	<u> </u>	· · · · ·	7.070	, ,,,	·	1	Date/Time	
FINAL SAMPLE Disposal Method DISPOSITION						Dispo	sed By					Date/Time	



# RICHMOND, CA LABORATORY SAMPLE RECEIPT CHECKLIST

Coc No. F03-066-192   Conteiner I.D. No. ERC-01-059   Requested TAT (Days)   Y.5   P.O. Received   Yes [] No []	Client:	FH-Cant	ral Pl	atem,	Hanfor	<i></i> ∠ Date/T	ime recei	ved <u>7-\$5</u>	-03 5	1:30
NSPECTION   1.   Custody seals on shipping container intact?   Yes [ \( \bar{\partial P} \)   No [ ]   N/A [ ]   2.   Custody seals on shipping container dated & signed?   Yes [ \( \bar{\partial P} \) No [ ] N/A [ ]   3.   Custody seals on sample containers intact?   Yes [ \( \bar{\partial P} \) No [ ] N/A [ ]   4.   Custody seals on sample containers dated & signed?   Yes [ \( \bar{\partial P} \) No [ ] N/A [ ]   5.   Packing material is:   Wet [ ] Dry [ \( \bar{\partial P} \)   Wet [ ] Dry [ \( \bar{\partial P} \)   Wet [ ] Dry [ \( \bar{\partial P} \)   No [ ] N/A [ ]   Wet [ ] Dry [ \( \bar{\partial P} \)   No [ ] N/A [ ]   No [ ]   N/A [ ]   No [ ]   N/A [ ]   No [ ]   N/A [ ]   N	CoC N	o. <u>F03-6</u>	206-19	2	<del></del>		<del></del>			
1. Custody seals on shipping container intact? Yes [ \( \) No [ ] N/A [ ]  2. Custody seals on sample containers dated & signed? Yes [ \( \) No [ ] N/A [ ]  3. Custody seals on sample containers intact? Yes [ \( \) No [ ] N/A [ ]  4. Custody seals on sample containers dated & signed? Yes [ \( \) No [ ] N/A [ ]  5. Packing material is: Wet [ ] Dry [ \( \)    6. Number of samples in shipping container:	Contai	ner I.D. No.	ERC-0	1-059 F	Requested	TAT (Days)	4,6	P.O. Receiv	ed Yes[	د] No [ ]
2. Custody seals on shipping container dated & signed? Yes [			•		INSPE	CTION				
3. Custody seals on sample containers intact? Yes [ν] No [ ] N/A [ ] 4. Custody seals on sample containers dated & signed? Yes [ν] No [ ] N/A [ ] 5. Packing material is: Wet [ ] Dry [ν] 6. Number of samples in shipping container:	1.	Custody seal	ls on shipp	ing containe	r intact?		Yes [ \( \mathcal{\nu} \)]	No [	1	N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [	2.	Custody sea	ls on shipp:	ing containe	r dated & si	gned?	Yes [4]	No [	]	N/A [ ]
Second particular   Seco	з.	Custody seal	ls on samp	le containers	intact?		Yes [ ]	No I	1	N/A [ ]
Number of samples in shipping container:  Number of containers per sample:  Number of containers per sample labels [ ] No [	4.	Custody sea	ls on samp	le containers	dated & sig	gned?	Yes [ 🖊	No [	]	N/A [ ]
7. Number of containers per sample:	5.	Packing mate	erial is:				Wet [ ]	Dry [	<i>[</i> [	
8. Samples are in correct container  9. Paperwork agrees with samples?  10. Samples have: Tape [	6.						•			
8. Samples are in correct container  9. Paperwork agrees with samples?  10. Samples have: Tape [	7.	Number of c	ontainers p	er sample:	<u> </u>		(Or see C	oC	)	
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [ ] Hazard label	8.						] N	0[]		
11. Samples are: In good condition [] Leaking [] Broken Container [] Missing []  12. Samples are: Preserved [] Not preserved [] pH Preservative	9.	Paperwork a	grees with	samples?		Yes [	] •	No [ ]		
12. Samples are: Preserved [ ] Not preserved [ ] pH Preservative	10.	Samples hav	e: Tape l	[	labels [ ]	Rad labels [	Approp	riate sample l	labels [ 🔑	۲.
13. Describe any anomalies:	11.	Samples are:	ln goo	d condition	(t/) Leaki	ng[] Bro	oken Conta	iner[] M	issing (	)
14. Was P.M. notified of any anomalies? Yes [**] No [**] Date 7-8-03  15. Received by Date: 7-8-03 Time: 9:30  Customer Sample No. cpm mR/hr wipe No. cpm mR/hr wipe  On Chamber Ser. No. Calibration date	12.	Samples are:	: Preserve	d [ ] No	t preserved	[ ] pH	Pre	eservative		
Date: 7-8-03   Time: 9:30   T	13.	Describe any	anomalies	:						
Date: 7-8-03   Time: 9:30   T	-			<del></del>		···	····			
Date: 7-8-03   Time: 9:30   T				···			···			
Customer Sample	14.	Was P.M. n	otified of a	ny anomalie	s? Ye	es [🐓 ]	No [ ]	Date	8-03	
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Mr. Steve Trent Fluor Hanford Inc. 825 Jadwin Ave. Richland, WA 99352

Subject: Contract No. 630
Analytical Data Package

Dear Mr. Trent:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0307L752
SDG #	H2275
SAF#	F03-006
Date Received	7-8-03
# Samples	2
Matrix	Soil
Volatiles	
Semivolatiles	
Pest/PCB	Χ
DRO/GRO/KRO	
Herbicides	X
GC Alcohol	
Metals	
Inorganics	X



The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,

Lonville Laboratory Incorporated

Orlette S. Johnson Project Manager

r:\group\pm\orlette\tnu-hanford\data\fc\_ltrs.doc

# Lionville Laboratory, Inc. PEST/PCB ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-006 H2275

DATE RECEIVED: 07/08/03 LVL LOT # :0307L752

CLIENT ID	LVL	#	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B173T4	001		S	03LE0802	06/30/03	07/09/03	07/15/03
B173T4	001	MS	S	03LE0802	06/30/03	07/09/03	07/15/03
B173T4	001	MSD	S	03LE0802	06/30/03	07/09/03	07/15/03
LAB QC:							
PBLKXO	MB1 MB1	BS	s s	03LE0802 03LE0802	N/A N/A	07/09/03 07/09/03	07/15/03 07/15/03



Anlul3



Analytical Report

W.O. #: 11343-606-001-9999-00

Date Received: 07-08-03

Client: TNU-HANFORD F03-006 LVL #: 0307L752

SDG/SAF#: H2275/F03-006

#### **PESTICIDE**

One (1) soil sample was collected on 06-30-03.

The sample and its associated QC samples were extracted on 07-09-03 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 07-15-03. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 2. All required holding times for extraction and analysis have been met.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. Four (4) of ten (10) surrogate recoveries were outside QC limits; however, the surrogate recovery acceptance criteria were met (i.e., no more than one outlier per sample).
- 5. All blank spike recoveries were within acceptance criteria.
- 6. All matrix spike recoveries were within acceptance criteria.
- 7. All initial calibrations associated with this data set were within acceptance criteria.
- 8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- 9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

Laboratory Manager

Iain Daniels

Lionville Laboratory Incorporated

pef\r:\group\data\pest\tnu hanford\07L-752.pes

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.



#### GLOSSARY OF PESTICIDE/PCB DATA

# DATA QUALIFIERS

- Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.
- Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

### **ABBREVIATIONS**

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- **DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- DF = Dilution Factor.
- NR = Not Required.



#### GLOSSARY OF PESTICIDE/PCB DATA

- This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- This flag applies to a compound that has been confirmed by GC/MS.

RFW Batch Number: 0307L752 Client: TNUHANFORD F03-006 H2275 Work Order: 11343606001 Page: 1

	Cust ID:	B173T4		B173T4		B173T4		PBLKXO		PBLKXO BS		
Sample	RFW#:	001		001 MS		001 MSD		03LE0802-M	B1		в1	
Information	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		
	D.F.:	1.0	0	1.0		1.0	0	1.0	_	1.0		
	Units:	UG/K	G	UG/K	.G	UG/K	G	UG/K	G	UG/K	G	
Surrogate:	Tetrachloro-m-xylene	100	8	90	ક	100	용	105	왐	75	용	
	Decachlorobiphenyl	135 *			ક	130 *						
=========			=fl==	========	=f1=	=======	=fl	==========	≃f1	=======	=fl	======fl
				1.7		1.7		1.7		1.7		
Beta-BHC_		1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	
Delta-BHC_		1.7	Ü	1.7	U	1.7	U	1.7	U	1.7	U	
gamma-BHC (1	Lindane)	1.7	ט	90	8	96	왕	1.7	U	98	왕	
			U	80	*	86	૪	1.7	U	94	%	
Aldrin		1.7	Ū	80	8	92	8	1.7	U	88	%	
Heptachlor 6	epoxide	1.7	U	1.7	U	1.7	Ũ	1.7	U	1.7	U	
Endosulfan 1	I	1.7	Ū	1.7	U	1.7	U	1.7	U	1.7	U	
			U	93	%	99	옿	3.3	U	105	*	
4,4'-DDE		3.4	Ū	3.4	U	3.4	U	3.3	U	3.3	U	
Endrin		3.4	U	100	8	108	왕	3.3	U	114	8	
Endosulfan :	II	3.4	Ū	3.4	U	3.4	U	3.3	U	3.3	U	
4,4'-DDD		3.4	U	3.4	U	3.4	U	3.3	Ü	3.3	U	
Endosulfan s	sulfate	3.4	U	3.4	Ü	3.4	U	3.3	U	3.3	U	
4,4'-DDT		3.4	U	100	%	109	%	3.3	U	99	%	
	r		U	17	U	17	U	17	U	17	U	
Endrin keto	ne	3.4	U	3.4	U	3.4	U	3.3	U	3.3	U	
Endrin aldel	hyde	3.4	U	3.4	U	3.4	U	3.3	U	3.3	U	
alpha-Chlore	dane	1.7	Ų	1.7	U	1.7	U	1.7	U	1.7	U	
	dane	1.7	U	1.7	Ū	1.7	U	1.7	U	1.7	U	
		170	U	170	U	170	U	170	U	170	U	

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

Par Juls

Report Date: 07/16/03 10:33 \

Lionville Labor	atory (	Jse Only	Cust	ody	Tran	sf	er I	Rec	ord/l	Lab	Wo	rĸ	He	:qu	につ	e r	age_		ــــــ	_		<b>#</b> =			
030767	152			FIEL	D PERSO	ONN	EL: C	OMPLE	ETE ONL	Y SHAD	ED A	REA	s <sub>/</sub>	В	C							T E	ONWHEL	4B08410	DRYING
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Est. Final Pro								#/Tune	Container	Liquid															
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Project Conta	ct/Pho	ne #	<del></del>	<del>.</del>				Volume	•	Liquid	L				<u> </u>	<u> </u>									
Lionville Lab	pratory	Project Mai	nager	<del></del>	07			<u> </u>		Solid	<del> </del>	<del> </del>	60	60			<u> </u>	ļ	ļ	<del>                                     </del>	<u> </u>	↓			
ac 548	<u> </u>	Del 7.	TAT TAT		30 0	32		Preser	vatives		<del> </del>	OPC	ANIC		<u> </u>	<del> </del>	1_	<u> </u>	200	-	<del> </del>	<u> </u>	ļ		<u> </u>
Date Rec'd	7-6	3-03	_ Date Due	,	1.7.03			REQUE			¥o <sub></sub>	AN AN	Fest Best	ē Ē	O Const	1112 1000	The same	Metal	ORG Z	1					
MATRIX		T				M	etrix	<del> </del>	<del>                                     </del>	1		<u> </u>	Л <u>Т</u>	1		Lionv			ory Us	e On	⊥ ly	1	ـــــ	L	<u> </u>
CODES: S - Soil SE - Sediment SO - Solid SL - Studge	Lab ID		Client ID/Des	cription		Ch	OC osen (/)	Matrix	Date Collected	Time Collected			д 60811	×58HD	INGGR	INSUL	23/27								
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	Run	matrix							1 2 3 4 5									1) Has Air 2) 3) Co 4)	Imples Shippe and Del bill # _ Ambier Receive Indition Sample	ivered  But ont or of ed in G	nilled Rood N	1)   Pac 2)   Pac 3)	nper Resi Present ckage Unbrok ckage Present Unbrok mple	on Ou or on on O or on Sa O or an on	nter N Outer N Imple N
Relinquished	1	Received by	Date 7/8/03	Time	Rel	inqui: by	shed		Received by	Di	ote	Tim		Same COC NOTE	oles Lal Record ES:	es Betw bels and 17 Y o		5) Ho	operly I Receiv Iding T	OO WIN	r Ni nin	Up	oler ,		C'I

FH-Central Plates	au Project	C	HAIN OF CUST	TODY/S	AMPLE	ANALY	YSIS	REQUES	<u> </u>	1.0	J-000 1/1	<u> </u>	
Collector Pope/Pfister/Hughes/Johanse	0		any Contact Hulstrom	Telepho 373-3				Project Coord TRENT, SJ	inator	Price Code	8N	,	rnaround
Project Designation 200-PW-2/200-PW-4 OU - B	orehole Soil Sampling		ling Location -A-36B (C3248) - 0.5'				!	SAF No. F03-006		Air Quality	y 🗆	45	Days
ice Chest No. ERC	01-041		Logbook No. F-N-3361		COA 117504ES	10		Method of Shi Federal Expi					
Shipped To EBERLINE SERVICES (For	• •	Offsite	e Property No.	030	305			Bill of Lading	/Air Bill	No. SE	E OSF	e_	
Possible sample haza Potentials F		-	Preservation	Cool 4C	Cool 4C								
Tie To Special Handling and/or S	1317490 Storage		Type of Container	aG	aG								
	1400		No. of Container(s)	i	l								
·			Volume	60mL	60m <u>L</u>		_						
	SAMPLE ANAL	YSIS		Pesticides - 808 [	Chloro- Herbicides - EPAB151								
Sample No.	Matrix *	Sample Date	Sample Time										
B173T4	SOIL	6 -30 -0	3 0700	X	X								
					1		, , , , ,		<del>                                     </del>	<del></del>	<del> </del>		<del>  </del>
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		·							<u> </u>				
R FAHLBERG T. Relinquished By/Removed From A 3728 7.2.0 Relinquished By/Removed From R FAHLBERG FOR	Date/Time 130  Pate/Time 1130  RC Date/Time 1130  Date/Time 1130  Date/Time 1130  Date/Time 1130  Date/Time 1300  RC Date/Time 1300  RC Date/Time 1300  RC Date/Time 1300	Received By/Stor R FAHL Received By/Stor R FAHL Received By/Stor	ed In Da	te/Time // 2 · cs 3 te/Time // 2 · cs 3 te/Time // 2 · cs 3	30-3 Repor 1944 1130 33-3 3-3 3-3	IAL INSTR		ONS nge compounds from	m WTPH-I	) analysis.		oate/Time	Matrix *  S-Soil SE-Sediment SO-Soild SI-Studge W = Waser O-Oil A-Alz DS-Drum Solids DL-Drum Liquids T-Tissae WI-Wipe L-Liquid V-Vegetation X-Other
SECTION Received by	Newor		·	Ti Ce	ow)- II						7/8/0	5 69	30
FINAL SAMPLE Disposal Me	ethod O					Dispos	ed By	<del></del>		· <del></del>		Date/Time	

Proper Displaced   Sampling   Condenses   Condense	FH-Central Plates	u Project	CI	IAIN OF CUST	ODY/S	AMPLI	ANAL.	LULU	*****			<del>_</del> _		
TOSCH TENNAMENT CONTROL OF THE LIGHARD NO. 1179048510  PERIAL Leghous No. 1179048510  PERIAL Leghous No. 1179048510  Official Property No. 17050 305  Bill of Ladingly Bill No. 5555  Second Handling and/or Storage  COD   1/2 0	Collector Pope/Pfister/Hughes/Johanse	n								ator P	rice Code	8N	•	
SAMPLE ANALYSIS  Supple No. Marix*  Sample No. Mari	Project Designation 200-PW-2/200-PW-4 OU - B	orchole Soil Sampling			5'					A	ir Quality		45.	Days 
Sample No. Marrix * Sample Date Sample Time  CHAIN OF POSSESSION  Sample No. Marrix * Sample Date Sample Time  CHAIN OF POSSESSION  Single Property No. 10030 305  Significant State of Lading/Art Bull No. SFE-056  Preservation  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  Significant State of Lading Art Bull No. SFE-056  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  CHAIN OF POSSESSION  Significant State of Lading Art Bull No. SFE-056  Significant State of Ladi	Ice Chest No. ERC	01-041					310							
Special Handling and/or Storage  COD   44 oc   Superficial Names	Shipped To TYN 1-1-03	า	Offsite	Property No.	7030	305			Bill of Lading/A	ir Bili No	SF	FO	e_	<del></del>
Special Handling and/or Storage  COO   14 0 C	POSSIBLE SAMPLE HAZA	RDS/REMARKS			1	1	1 1	1	1 1		1	[	1	<u> </u>
Special Handling and/or Storage  COD   42 o			74 90	Preservation	Cool 4C	None	None							
SAMPLE ANALYSIS  Sample No. Matrix * Sample Date Sample Time  Symptomic Displacement From Date Time 1/5 / 2 Proceeds by Journal 1 Street Street By	ſ	_		Type of Container	aG	aG .	<b>A</b>							
Sample No. Matrix * Sample Date Sample Time  Soll. 7-1-62 083 0  Sign/Print Names  Sign/Print Names  Description of Date Sample Time  Description of Date Sample Time  Sign/Print Names  Sign/Print Names  Description of Date Sample Time  Description of Date Sa	l <sup>-</sup>	-		No. of Container(s)	<u> </u>		1 60ml	<del> </del>			<del> </del>	<u> </u>		
Sample No. Matrix * Sample Dute Sample Time  Sign/Friat Names  CHAIN OF POSSESSION  Sign/Friat Names  Sign/Friat Names  Sign/Friat Names  Date/Time / So. / A Date/Tim			<u> </u>	· Volume	OULL	Joane					<u> </u>			
CHAIN OF POSSESSION  Sign/Frial Names  Described By/Remoyed From, Described By/Remoyed From Descr		SAMPLE ANAI	Lysis		353.2; Oil & Grouer - 413. Chromium	Special lastructions.	1 - 1							
CHAIN OF POSSESSION  Sign/Frial Names  Described By/Remoyed From, Described By/Remoyed From Descr	Sample No.	Matrix *	Sample Date	Sample Time										
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Received By/Stored In  Date/Time   5.12   Received By/Stored In  Date/Ti	CHAIN OF POSSESSIO	ll	Sign/Prin	t Names	<u></u>	SPE	CIAL INSTI	RUCTIO	ons de			ь	<del></del>	Matrix *
Title  LABORATORY  SECTION  Date/Time  1.30  Repeived By/Stored In  ERC Date/Time  1.30  ERC Date/Time  1.30  ERC Date/Time  ERC Date/Time  1.30  Date/Time	Religenished ByRemoyed From	in 1060B 7-1-	3 mo-08	26 ref. 2	7-1-3	- com	ounds from W	TPHID a	ion limit of 50,0 pCity nalysis. FH acknowle	tor C-14. I edger that he	olding times (le	ss than 14 da		SE=Sediment SO=Solid
Color   Colo	Retinguistics Typicanored Frage		Pacinal Ry Ny	עווגנו גאישט ע	BUL.	16 (2)	Fechootium 00; Nickel 63; Neg	-Etroptius Plusium ?	m <del>-09,90 — Total St,</del> 19 137	cropic thor	TOO TOO TURE	232}; Carbon	2-14; lodine-	W = Water O=Oil
READ SECTION  RECEIVED BY Received By Stored In Labor Time  LABORATORY SECTION  Received By Received By Board In Labor Time  SECTION  Received By Received By Disposed Method  Disposed By			DIM LAUF	BERG Kicken	77	U-3								DS=Drum Solids DE=Drum Liquids
Title Date/Time  SECTION  FINAL SAMPLE Disposed Method  REAL BERG REAL TO THE DATE TO DATE TIME  Date/Time  Date/Time  Disposed By  Disposed By  Disposed By  Disposed By  Date/Time  Disposed By  Date/Time	R FAHLBERG K.	1.6.63	117	3728 7.2	23									L=Liquid V=Vegetation
R FAHL BER 6 RECEIVED 7.2.03 FOOLES  LABORATORY Received By SECTION Received By SECTION Received By SECTION Received By SECTION Received By Date/Time 7/8/03 0930 Disposed By Date/Time	Relinquished By/Removed From	7.08 1000		BERG RLEGE	7.70	3								X=Other
SECTION Just Her CORD-II 7/8/53 0930  FINAL SAMPLE Disposed Method Disposed By Date Time		5800 7.2.03	For E					<del></del>					Date (Fire-	<u> </u>
FINAL SAMPLE Disposed Method Date Time	1212424	& Hend	? 	·	T		·II	<del>,,</del>		·		7/8/	rs 09:	30
1		lethod U						sod By	·		-	t 7-	Date/Time	

# LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

LIENT: TNU- HANFORD

urchase Order/Project: 200 -PW. 2/200/PW-4-04

DATE: 7/8/03

AF# SOW# / Release #: F03-006

aboratory SDG #: 03076 752

OTE:	ALL ENTRIESMARKED "NO" MUST BE E		THE COMM	ENT SECTION	
1.	Custody seals on coolers or shipping container intact, signed and dated?	D/Yes	□ No	D N/A	D see Comment #
2.	Outside of coolers or shipping containers are free from damage?	□ Yes	□ No	D N/A	☐ see Comment #
3.	Airbill # recorded?	Dires	□ N <sub>0</sub>	□ N/A	See Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	T Yes	□ No	D N/A	☐ see Comment #
5.	Sample containers are intact?	☑ Yes	□ No	D N/A	□ see Comment #
<b>6.</b>	Custody seals on sample containers intact, signed and dated?	DXes	□ No.	□ N/A	sec Comment #
7.	All samples on correceived?	DX es	□ No	D N/A	see Comment #
8.	All sample label information matches coc?	₽ Yes	DNo	□ N/A·	D see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	□ Yes	DNO.	· D N/A	□ see Comment #
10	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	DY:es	D No	D N/A	D sec Comment #
11	. Where applicable, bar code labels are affixed to coc?	D Yes	□ N <sub>0</sub>	Z N/A	□ see Comment #
12	. coc signed and dated?	₩ Yes	D No	□ N/A	See Comment #
13	. coc will be faxed or emailed to client?	™ Yes•	D No	□ N/A	D see Comment
14	. Project Manager/Client contacted concerning discrepancies? (name/date)	r □ Yes	□ N <sub>0</sub>	<b>™</b> NIA	🗅 see Comment (

Cooler # / temp (°C) and Comments:

ERC-01-041 1°

Laboratory Sample Custodian:

Will Hung

Laboratory Project Manager:

# Lionville Laboratory, Inc. HBGX ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-006 H2275

DATE RECEIVED: 07/08/03 LVL LOT # :0307L752

CLIENT ID	LVL	#	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
				······································			
B173T4	001		s	03LE0801	06/30/03	07/09/03	07/17/03
B173T4	001	MS	S	03LE0801	06/30/03	07/09/03	07/17/03
B173T4	001	MSD	S	03FE0801	06/30/03	07/09/03	07/17/03
LAB QC:							
PBLKXN	MB1		S	03LE0801	N/A	07/09/03	07/14/03
PBLKXN	MB1	BS	S	03LE0801	N/A	07/09/03	07/14/03



96 Males



#### **Analytical Report**

Client: TNU-HANFORD F03-006

LVL#: 0307L752

SDG/SAF # H2275/F03-006

**W.O.** #: 11343-606-001-9999-00

**Date Received: 07-08-2003** 

#### HERBICIDE

One (1) soil sample was collected on 06-30-2003.

The sample and its associated QC samples were extracted on 07-09-2003 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 07-14,17-2003. The extraction and analysis procedure was based on method 8151A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

- 1. All results presented in this report are derived from a sample that met LvLI's sample acceptance policy.
- 2. The required holding time for extraction and analysis has been met.
- 3. The method blank was below the reporting limits for all target compounds.
- 4. All surrogate recoveries were within acceptance criteria.
- 5. All blank spike recoveries were within acceptance criteria.
- 6. Two (2) of sixteen (16) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
- 7. All initial calibrations associated with this data set were within acceptance criteria.
- 8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
- 9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

lain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

som\r:\group\data\herb\tnu\0307-752 doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 0 pages.

Lionville Laboratory Sample Discrepancy Report (SDR)	SDR #: 036c 254
Date: 7(18/03 Samples: <u>M5, M50</u> Matrix	meter: <u>OHBGX</u> x: <u>Soil</u> Batch: <u>O3UE080</u>
	ed Label ID's Illegible
2. Known or Probable Causes(s)	,
and making affect	
3. Discussion and Proposed Action  Re-log  Entire Batch Following Samples: Re-leach Re-extract Re-digest Revise EDD Change Test Code to Place On/Take Off Hold (circle)  4. Project Manager Instructionssignature/date: Concur with Proposed Action Disagree with Proposed Action; See Instruction Include in Case Narrative Client Contacted: Date/Person Add Cancel  5. Final Actionsignature/date: Verified re-[log][leach][extract][digest][analysis] (circle) Included in Case Narrative Hard Copy COC Revised	>
Hald Copy COC Revised Electronic COC Revised EDD Corrections Completed	
When Final Action has been recorded, forward original to QA Specialist for distributi	ion and filing.
Route Distribution of Completed SDR	yman

QA-105-A-0801



#### GLOSSARY OF HERBICIDE DATA

# DATA QUALIFIERS

- Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.

### ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA = Not Applicable.
- DF = Dilution Factor.
- NR = Not Required.
- SP = Indicates Spiked Compound.



### **GLOSSARY OF HERBICIDE DATA**

- This flag is used for an Herbicide target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form 1 and flagged with a "P".
- D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C = This flag applies to a compound that has been confirmed by HPLC.

Herbicides, Special List

Client: TNUHANFORD F03-006 H2275 Work Order: 11343606001 Page: 1 RFW Batch Number: 0307L752 PBLKXN PBLKXN BS B173T4 B173T4 Cust ID: B173T4 03LE0801-MB1 03LE0801-MB1 001 MSD RFW#: 001 001 MS Sample SOIL SOIL SOIL Information Matrix: SOIL SOIL 1.00 1,00 1.00 1.00 1.00 D.F.: ug/kg uq/kq uq/kq Units: ug/kg ua/ka 68 \* 95 8 64 왕 120 DCAA 85 કૃ Surrogate: 옿 170 U 127 170 U 101 88 2 \* % 67 U 왕 68 U 22 \* % 121 Dicamba 170 U 118 Dichloroprop \_\_\_\_\_ 170 U 93 と 63 34 U 82 % 63 % 33 U 115 2.4-D 2,4,5-TP (Silvex) 77 % 17 U 114 17 U 104 % 63 % 17 U 108 2,4,5-T\_\_\_\_ 17 U 84 % 68 % 170 U 73 왕 83 2,4-DB 170 U 98 68 % 17 U ş 17 U 93 Dinoseb

Anlala

Report Date: 07/18/03 10:05 - \

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked. %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

Lionville	Laboratory	Use	Only
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Custody Transfer Record/Lab Work Request Page 1 of 1

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	HONVILLE LABORATORY INC	

030767	152			FIELD	PERSO	NNE	EL: C	OMPLE	TE ONL	Y SHAI	DED A	AREA	s <sub>A</sub>	$\mathcal{B}$	$\boldsymbol{c}$									BORATOR	
Client 7W	w H	ANFORD	SA	FEI	F/23-	000	0	Refrige	rator #				3	3	3										
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FH-Central Pla	teau Project		CH	AIN OF CUST	CODV/S	AMPLE	ANALV	SIS	REQUES	r	F0	3-006-191	Page 1	of ]	
Collector Pope/Pfister/Hughes/Joha		<del></del>		Contact	Telepho 373-3	ne No.	424 44 22 2		Project Coord TRENT, SJ		Price Code	8N	Data Tu	rnaround C	
Project Designation	- Borehole Soil Sampling		Sampling	Location 36B (C3248) - 0.5'					SAF No. F03-006		Air Quality   45 I				
les Chart No.	C 01-041			book No.		COA 117504ES	10		Method of Ship Federal Expr						
Shipped To EBERLINE SERVICES	•				2030	30>			Bill of Lading		No. SE	E OSF			
Possible sample ha	ZARDS/REMARKS Radioactive			Preservation	Coal 4C	Cool 4C									
Special Handling and/o	1317490 or Storage			Type of Container	aG	aG									
م	201400		r	Volume	60mL	60mL					_	<del> </del>		-	
	SAMPLE ANA	LYSIS		Youne	Pesticides - 8081	Chloro- Herbicides - EPA8151									
Sample No.	Matrix *	Sample	Date	Sample Time											
B173T4	SOIL	6 -30	-03	0700	X	X									
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Relinquished ByRemoved From  18 3728 7: 2  Relinquished By/Removed From	Date/Time  -63 - 1000  ERC Date/Time 1000	Recogives 1	A/Flored In	ERG 12 SCOOL	te/Time Acr	00								L=Liquid V=Vegetation X=Other	
LABORATORY Received	Newal				Titi Cert	- <b>(</b> )			···			7/8/0		30	
FINAL SAMPLE Disposal DISPOSITION	Method O						Disposed	d By					rate/Time		

FH-Central Plates	nu Project	C	HAIN OF CUST	CODY/S	AMPLE	ANAL	YSIS	REQUEST		FU3	-000-174	1 -	<u>.</u>
Collector Pope/Pfister/Hughes/Johanse	n	Comp	any Contact Huistrom	Telepho 373-3	me No.			Project Coordin TRENT, SJ	etor	rice Code	8N		irnaround (
Project Designation 200-PW-2/200-PW-4 OU - B	forehole Soil Sampling		<b>ling Location</b> i-A-36B (C3248) - 12.5-	15'				SAF No. F03-906	A	ir Quality		45	Days
Ice Chest No. ERC	01-041		Logbook No. F-N-3361		COA 117504ES	10		Method of Ships Federal Expres					
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POSSIBLE SAMPLE HAZA	RDS/REMARKS				1	1 1	1	, ,		1	}	1	]
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Special Handling and/or S	Storage		}- <del></del> -	<del>                                     </del>	<del>                                     </del>	1	-			+	┼	<del> </del> -	-
Cod	1400		No. of Container(s)	60mi	60mL	60mL	<b></b>			<del>-</del>	<del> </del>	<b></b>	<del> </del>
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<del>                              </del>	<del></del>		<u> </u>	NO2/NO3 - 353.2; OR &	Sec item (1)	Trising, H3	<del> </del>			<del>                                     </del>	<del>                                     </del>	1	1.
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B173T6	SOIL	7-1-63	0830	X	17								
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				<del>├</del> ──	<del>                                     </del>	<del> </del>	<del> </del>	-11		<del> </del>	<del>                                     </del>	<del> </del>	<del> </del>
CHAIN OF POSSESSIO	<u>                                     </u>	Sign/Pris	t Names	<u></u>	SPEC	LAL INSTR	UCTIO	ONS ASV	· 1.	1-03	ــــــــــــــــــــــــــــــــــــــ	<u> </u>	Matrix *
Religioushed By/Remoyed From ,	Date/Time /5: /	2 Received By/Stor	red In Da	nte/Time /S	7 D Hel	do is to edition	a delecti	en limit of 30.0 pCb; palysis. FH acknowle	10t C-14. R	tepart kerosene	and diesel ran	gt c)	S-Soil
Territor Levi	n 116013 7-1-		<del>ه (دورن کا آن</del>	7-/-3	bcuse			alysis. Pri scalgowa: dl characterístics.			_	э) шау ша	SD-Solimon SO-Solid
Retinguished Ty/Resnoved From	7-2-73-1130	Received By Sty	<b>ราวารการการการการ</b>	YUL7-	)Kg (***	echoetium 90;	Stroutium	<del>- 89,90 — Total Sr, 1</del> 1	Otopic Thor	~ 7-1	232); Carbon-	4; lotine-	Sh-Shutge W = Water
Refluenciabet By/Removed Front	a) (m) 1-3/	Repeived By/Stor	ed la ESC De	Mo/Time 11	30 139;	Nickel-63; Nep	h <del>aina 3</del>	37					O-Oil A-Air DS-Drum Solids
	マンプラ しんしゅつ		BERG Rice	7900	2								DL=Down Liquids T=Tinger
R FAHLBERG KA	Ki Date/Time 11/30	Received By/Stra	win 5778 <u>7.2</u> 3	ROTURE [[	>0								W)=Wips 1:-Linuid
Relinquished By/Removed From	Date/Time		ed in ERB	te/Time [e	00								V=Vegetation X=Other
1 A 3728 7	7-03 1000		BERG RLOC	7.70	2								}
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LABORATORY Received By		7	<i></i>	Tì		<del></del>		<del></del>			ī	)ate/Time	<del></del>
SECTION	D Hend	·			COORD	-II					7/8/0	3 09:	3 <i>)</i>
FINAL SAMPLE Disposal Me	ethod U			<u>.</u>		Dispos	ed By					Date/Time	
DISPOSITION								<del></del>					

# LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

IENT: TNU- HANFORD

chase Order/Rroject: 200 - PW - 2/200/PW-4-04

DATE: 7/8/03

F# SOW# / Release #: F03-006

poratory SDG #:

03076 752

TE:	ALL ENTRIES MARKED "NO" MUST BE		and the second s	ENT SECTION	<u> </u>
1.	Custody seals on coolers or shipping container intact, signed and dated?	D/Yes	□ No	□ N/A	see Comment #
2.	Outside of coolers or shipping containers are free from damage?	D) X es	□ No	□ N/A	See Comment #
3.	Airbill # recorded?	D'Yes .	□ No	□ N/A	D see Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	Yes	□ Ne	DNA	□ see Comment #
_	•	/			
5.	Sample containers are intact?	ØYes ∕	□ No	D N/A	□ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	□)/s	□ No.	D N/A	D see Comment #
7.	All samples on cocreceived?	□ Xes	□ No	D N/A	see Comment #
8.	All sample label information matches coc?	G Yes	□ No	□ N/A·	see Comment
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	□ Yes	D/No	□ N/A	See Comment
10	. Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	D Yes	□ No	DN/A	C see Comment
11	. Where applicable, bar code labels are affixed to coc?	□ Yes	□ No	MIN	D see Comment
12	. coc signed and dated?	D Yes	□ No	□ N/A	D see Comment
13	coc will be faxed or emailed to client?	™ Yes-	□ No	□ N/A	D see Commen
14	. Project Manager/Client contacted concerning discrepancies? (name/date)	r Yes	D №0	O'NIA	D see Commen

Cooler # / temp (°C) and Comments:

RC-01-041 1°

Laboratory Sample Custodian:

Will Hung

10

# Lionville Laboratory, Inc. INORGANIC ANALYTICAL DATA PACKAGE FOR TNUHANFORD F03-006 H2275

DATE RECEIVED: 07/08	/03			1	LVL LOT # :0.	307L752
CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B173T4						
% SOLIDS	001	s	03L%S089	06/30/03	07/10/03	07/10/03
B173T6						
% SOLIDS % SOLIDS CHROMIUM VI CHROMIUM VI CHROMIUM VI CHROMIUM VI NITRATE NITRITE NITRATE NITRITE NITRATE NITRITE OIL & GREASE BY GRAV OIL AND GREASE BY GR OIL AND GREASE BY GR	002 002 REP 002 002 REP 002 MS 002 MSD 002 REP 002 MS 002 002 REP 002 MS	<b>6999999999999999999999999999999999999</b>	03L%S089 03L%S089 03LVI053 03LVI053 03LVI053 03LN3C33 03LN3C33 03LN3C33 03LOG032 03LOG032	07/01/03 07/01/03 07/01/03 07/01/03 07/01/03 07/01/03 07/01/03 07/01/03 07/01/03 07/01/03	07/10/03 07/10/03 07/21/03 07/21/03 07/21/03 07/21/03 07/08/03 07/08/03 07/08/03 07/16/03 07/16/03	07/10/03 07/10/03 07/21/03 07/21/03 07/21/03 07/28/03 07/08/03 07/08/03 07/17/03 07/17/03
CHROMIUM VI CHROMIUM VI CHROMIUM VI NITRATE NITRITE NITRATE NITRITE OIL & GREASE BY GRAV OIL AND GREASE BY GR	MB1 MB1 BS MB1 BSD MB1 MB1 BS MB1 MB1 BS MB1 BSD	000000000	03LVI053 03LVI053 03LVI053 03LN3C33 03LN3C33 03LOG032 03LOG032	N/A N/A N/A N/A N/A N/A	07/21/03 07/21/03 07/21/03 07/08/03 07/08/03 07/16/03 07/16/03	07/21/03 07/21/03 07/21/03 07/08/03 07/08/03 07/17/03 07/17/03 07/17/03





#### **Analytical Report**

Client: TNU-HANFORD F03-006 H2275

LVL#: 0307L752

W.O.#: 11343-606-001-9999-00

Date Received: 07-08-03

#### INORGANIC NARRATIVE

1. This narrative covers the analyses of 2 soil samples.

- 2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.
- 3. Sample holding times as required by the method and/or contract were met.
- 4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
- 5. The method blanks were within the method criteria.
- 6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Oil and Grease was within the 20% Relative Percent Difference (RPD) control limit.
- 7. The matrix spike recoveries for Chromium VI, Nitrate Nitrite and Oil and Grease were within the 75-125% control limits.
- 8. The replicate analyses for Percent Solids, Chromium VI, Nitrate Nitrite and Oil and Grease were within the 20% RPD control limit.
- 9. Results for solid samples are reported on a dry weight basis.
- 10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels

Laboratory Manager

Lionville Laboratory Incorporated

0<u>7-24-03</u>

Date

njp\i07-752

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

# Lionville Laboratory Incorporated

## WET CHEMISTRY

### METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<b>OTHER</b>
% Ash	D2216-80		
% Moisture	D2216-80		ILMO4.0 (e)
% Solids	D2216-80		ILMO4.0 (e)
% Volatile Solids	D2216-80		_
ASTM Extraction in Water	D3987-81/85		
BTU	D240-87		
CEC	<del>-</del>	9081	c
Chromium VI		✓ 3060A/7196A	
Corrosivity by coupon by pH		1110(mod) 9045C	
Cyanide, Total		9010B	_ ILMO4.0 (e)
Cyanide, Reactive		Section 7.3/9014	
Halides, Extractable Organic		9020B	EPA 600/4/84-008
Halides, Total		9020B	EPA 600/4/84-008
EP Toxicity		1310A	
Flash Point		1010	
Ignitability		1010	
Oil & Grease		9071A (mod.)	1413.1 (mod)
Carbon, Total Organic		9060	Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	D240-87(mod)	5050	
Petroleum Hydrocarbons, Total Rec	overable	9071	EPA 418.1
pH, Soil		9045C	·
Sulfide, Reactive		Section 7.3/9030B	
Sulfide		9030B(mod)	
Specific Gravity	D1429-76C/	D5057-90	
Sulfur, Total		9056	
Synthetic Preparation Leach		1312	
Paint Filter		9095A	
Other: Attrate Hitrite	Method: 4	PA 353.2 (mad	<u>(·)</u>
Other:	Method		

### Lionville Laboratory Incorporated

### METHOD REFERENCES AND DATA QUALIFIERS

### **DATA QUALIFIERS**

- Indicates that the parameter was not detected at or above the reported limit. The II =associated numerical value is the sample detection limit.
- \* = Indicates that the original sample result is greater than 4x the spike amount added.

#### **ABBREVIATIONS**

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

#### ANALYTICAL WET CHEMISTRY METHODS

- 1. ASTM Standard Methods.
- 2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
- 3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
- Standard Methods for the Examination of Water and Waste, 16 ed, (1983). a.
- Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed b. (1992).
- Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, C. (1986).
- d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
- e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
- f. Code of Federal Regulations.

#### INORGANICS DATA SUMMARY REPORT 07/21/03

CLIENT: TNUHANFORD F03-006 H2275 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0307L752

					REPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	FACTOR
======		**********	=======	****	T-= # 2 2 2 2 2 2	*****
-001	B173T4	* Solids	98.0	*	0.01	1.0
-002	B173T6	* Solids	92.8	•	0.01	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0
		Nitrate Nitrite	2.7	MG/KG	0.18	1.0
		Oil & Grease Gravimetri	719 11	MG /KG	719	1.0

#### INORGANICS METHOD BLANK DATA SUMMARY PAGE 07/21/03

CLIENT: TNUHANFORD F03-006 H2275 WORK ORDER: 11343-606-001-9999-00 LVL LOT #: 0307L752

					RBPORTING	DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	LIMIT	PACTOR
****		******************				=======
BLANK10	03LVI053-MB1	Chromium VI	0.40 น	MG/KG	0.40	1.0
BLANK10	03LN3C33-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0
BLANK10	03LOG032-MB1	Oil & Grease Gravimetri	667 u	MG/KG	667	1.0

#### INORGANICS ACCURACY REPORT 07/21/03

CLIENT: TNUHANFORD F03-006 H2275

LVL LOT #: 0307L752

WORK O	RDER:	11343-	606-	001-	9999-00
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			SPIKED	INITIAL	SPIKED		DILUTION
SAMPLE	SITE ID	ANALYTE	SAMPLE	RESULT	AMOUNT	*RECOV	FACTOR (SPK)
======		*************		======		****	
-002	B173T6	Soluble Chromium VI	3.8	0.43u	4.3	88.0	1.0
		Insoluble Chromium VI	1630	0.43u	1480	110.2	100
	·	Nitrate Nitrite	7.8	2.7	4.8	106.1	1.0
		Oil & Grease Gravimetr	7170	719 u	6940	103.2	1.0
BLANK10	03LVI053-MB1	Soluble Chromium VI	3.9	0.40u	4.0	98.4	1.0
		Insoluble Chromium VI	1220	0.40u	1240	97.9	100
BLANK10	03LN3C33-MB1	Nitrate Nitrite	5.2	0.20u	5.0	104.8	1.0
BLANK10	03LOG032-MB1	Oil & Grease Gravimetr	6490	667 u	6440	100.8	1.0
		Oil & Grease - Grav M	6600	667 u	6440	102.5	1.0

#### INORGANICS DUPLICATE SPIKE REPORT 07/21/03

CLIENT: TNUHANFORD F03-006 H2275

LVL LOT #: 0307L752

WORK ORDER: 11343-606-001-9999-00

SPIKB#1 SPIKB#2

SAMPLE	SITE ID	ANALYTE	*RECOV	*RECOV	*DIFF
	计大学 计回转 医阴道性 医阴道性 环状花 计电路 电电				
BLANK10	03L0G032-MB1	Oil & Grease - Grav	100.8	102.5	1.7

#### INORGANICS PRECISION REPORT 07/21/03

CLIENT: TNUHANFORD F03-006 H2275

LVL LOT #: 0307L752

WORK ORDER: 11343-606-001-9999-00

			INITIAL			DILUTION
SAMPLE	SITE ID	ANALYTE	RESULT	REPLICATE	RPD	FACTOR (REP)
*****	************	****	*****		***	*******
-002RBP	B173T6	% Solids	92.8	95.1	2.5	1.0
		Chromium VI	0.43u	0.43u	NC	1.0
		Nitrate Nitrite	2.7	2.8	3.7	1.0
		Oil & Grease Gravimetri	719 u	719 u	NC	1.0

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Custody Transfer Record/Lab Work Request Page 1 of /

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FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS



Client 77VI	~ H.	ANFORD	SA	FEFO	3-006	Refriger	rator #				3	3	3										
Est. Final Pro	. Samp	ling Date			<del></del>	#/Type	Container	Liquid	<b> </b>	<u> </u>													
Project #		11347-6	06-001	- 9999-pi	<u> </u>			Solid			VAC	IAG	IAG		1								
Project Conta	ct/Phot	ne#	<u> </u>	<del></del>		Volume		Liquid			<u> </u>												
		Project Manag						Solid			60	60	60		<u> </u>								
oc 378	<u> </u>	Del517.	<u> TAT </u>	30	dez	Presen	etives	<u> </u>	<u> </u>			-	-		1							· -	
						ANALY		_	<del> </del>		ANIC		Oir	N12	26	INC		1				-	
Date Rec'd	7-6	3-03	Date Due	8.7-1	03	REQUE	STED		δ V	N N	Pest B	Herb	GK K	100	Claran	Metal	5		1				
MATRIX		[	<del></del>		Matrix				<del>                                     </del>	٠		1			lle Lat		ory Us	e Oni	V	1		L	<u></u>
CODES:	Lab				QC Chosen		Date	Time			_	×							<u> </u>	_ ·			
S - Soil SE - Sediment	ΠD	C	lient ID/Descr	ription	(V)	Matrix	Collected		Í	1	H909 B	X 50 Ho	5	INSUL	325								
SO - Solid SL - Sludge					MS MSD		}		1		20	픙	TOGGR	1/1	3				{				
W - Water	001	B1737	4	<del></del>		5	6/30/3	a700			1	1											
A - Air	002	1	4				7/1/3		1					6	~	-					<del> </del>		
<b>DS -</b> Drum Solids			<del></del>				114 -	0.8.7.										<b></b>	<u> </u>		<del>   </del>		
DL - Drum Liquids		<b></b>	<del></del>	<del></del>				·															
L EP/TCLP Leachate		<del></del>		· · · · · · · · · · · · · · · · · · ·				<u> </u>											<del> </del>				
Wi - Wipe		 	<del></del>	<del> </del>			<del>  </del>		<del> </del>								<del></del> -	<del>'</del> -					
X - Other F - Fish		<del></del>	<del></del>	<del></del>		<del></del>				<del> </del>	<b></b>									<u> </u>			
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Special Instructi	ons:	SAF	# F03	-00%	DATE/	REVISION	IS:											Lionvil	le Labo	ratory	Use O	nly	
							I										mples v Shippe				nper Resi Present		
	Run	Matrix	۵c				2									Ha	nd Deli	vered .		Pa	ckage(	Y) or	N
						:	3	<u> </u>	<del></del>							Air	_ # اانط محمد	12.1		2)	Unbrok ckage	en on C	Outer
											_						Ambien				ckage Present		
	•						*									3) 1	Receive	ed in G	ood		•	TO OT	N
•						;	5									1	ndition Sample		N.		Unbroki mple ()		, I
							<u>3</u>		===						==-		perly F	reserv		80	XC Reco	ord Pre	sent
Relinquished		Received	Date	Time	Relinquished	1	Received by	0	ate	Tim	1e			s Betwe sels and						Uρ	on Sam	ple Re	c't N
by by		by		<del>├</del> ───┤├─	by	╅						COC	Record	1? Y 0	<b>6</b>	5) i Hol	Receive Iding Ti	mes			oler	گ ۾	ì
FillEs	1/-	Here	7/8/03	93		<del> </del>						NOTE			a / =			⟨O or	N	Te	mpt		.°C
	7	0		1 11		l		- 1		l		190	3 27	36	263	2/							

FH-Central Platea	u Project	C	HAIN OF CUST		100 000 171			of i					
Collector Pope/Pfister/Hughes/Johanser	1	Comp LC	any Contact Huistrom	Telepho 373-3				Project Coordi FRENT, SJ	nator	Tire code OI4			rnarouad
Project Designation 200-PW-2/200-PW-4 OU - Bo	orehole Soil Sampling		ling Location 5-A-36B (C3248) - 0.5'					SAF No. F03-006		Air Qualit	ty 🗆	45 ] 	Days
Ice Chest No. ERC	01-041		Logbook No. IF-N-3361	·	COA 117504ES	10		Method of Shipment Federal Express					
Shipped To EBERLINE SERVICES (For		Offsi	te Property No.	030	30>			Bill of Lading	Air Bill	No. SE	E OSF	و ا	
POSSIBLE SAMPLE HAZA													
Potentials F		_	Preservation	Cool 4C	Cool 4C					1		}	
Tie To Special Handling and/or S	1317490 torage		Type of Container	aG	aG								
·	1400		No. of Container(s)	1	1			_L	<u> </u>		_	l	
	•		Volume	60mL	60mL								
	SAMPLE ANAL	YSIS		Pesticides - 808 ]	Chloro- Herbicides - EPA8151		-						
Sample No.	Matrix *	Sample Date	Sample Time						<u> </u>				la de la companya de
B173T4	SOIL	6 -30 -0		人	X	Erang sasas and Earl			5 July 1000-10-	made #		يغىسىد.ىيى	3
					T								
<del></del>													
CHAIN OF POSSESSIO	<del></del>	Sign/Prin	t Names		SPEC	IAL INSTRUC	CTION	NS .	11 FFF 1	Daniel 1			Matrix *
Relinquished By/Removed From	Date Pane 6 3	Received By/Sto	red in Day Const (4P)	nte/Time 6	-30- 5 Repor 2 44 1130	t kerosene and die	esel rang	ge compounds fro	n WTPH-	D analysis.			S=Soii SE=Sediment SO=Solid SI+Statge
110-030 KUF~	1-)-(13 1136 L. Pare/Time 113	Received By/Sto	inson yarunu	te/Time	30					٠			O-Oil W = Water
Relinquished By/Removed From E	NDV 1 12) B	R FAHL	BERGISTURE	7.2 -	در								DS=Drum Solids DL=Drum Liquids T=Tissue
REAHLBERG TO TO	fle 7-2-0		" 5 7 6 K 7	フィベス	1								WI=Wipc L=Liquid V=Vegetation
Relinquished By/Removed From	Date/Time	Recovered Day Ste	THERE ISSA	ate/Time A	2.0								X=Other
Relinquished By/Removed From R FAHL BER 6 KG	Date/Time / 000		red In Da	ate/Time									
LABORATORY Received by SECTION			<del></del>		tic J- II						7/8/0	Date/Time	30
FINAL SAMPLE Disposal Me	ethod					Disposed	Ву				- <del>'</del> '}	Date/Time	

FH-Central Plates	u Project	CI	IAIN OF CUST	ODY/S	AMPLE	ANAL	YSIS	REQUEST		FU3-000-194				
Collector Popc/Pfister/Hughes/Johansen	<u> </u>	Compa LC I	nny Contact Hulstrom	Telepho 373-3				Project Coordi TRENT, SJ	Leior	Price Code 8N D			Data Turnaround	
Project Designation 200-PW-2/200-PW-4 OU - Bo	orehole Soil Sampling		ing Location -A-36B (C3248) - 12.5-1	5'				SAF No. F03-006		Air Quality [		45	45 Days	
Ice Chest No. ERC	01-041		Logbook No. F-N-3361		COA 117504ES	10		Method of Ship Federal Expre						
Shipped To 7/1571-1-03		Offsite	Property No.	1030	305	<b>,</b>		Bill of Lading	Air Bill !	No. ≤ F	F-0	پور ا	- <del></del>	
POSSIBLE SAMPLE HAZA	<u> </u>	·				/	1				1	1	}	
RADIOACTIVE TIE TO: #173		t 90	Preservation	Cool 4C	None	None	)		}	}		}	]	
Special Handling and/or S	7.?~5 torage		Type of Container	≇G	∎G .	1								
-	1400	!	No. of Container(s)	1	1	1 1	ł			1	i			
			Volume	60mil.	60mL	60mL								
	SAMPLE ANALY	SIS		NO2/NG3 - 353.2; Oil & Greane - 413, Chromina Hex - 7196		Trishen H3								
Sample No.	Matrix *	Sample Date	Sample Time		84 P P	h/F	4		7 <sup>2</sup> .	11. Sec. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	A. Was			
B17376	SOIL	7-1-63	0830	X	<u>//</u>				<u> </u>			<u> </u>		
									L				4	
				<b></b>		<b></b> _	<b> </b>				<del> </del>		<del> </del>	
					<del> </del>	<u> </u>	<b> </b> _		<b> </b>		<del></del>	_}	<u> </u>	
		G:	<u> </u>		1			ons 45	<u> </u>	7-1-03		<del></del>	Matrix *	
CHAIN OF POSSESSIO  Relinquished By Removed From  Cov  Retinquished By Removed From  (V) - () () () () ()	Date/Time /5: /2	1 mo -02	ed in Da	no/Time /S 7-/-5 no/Time	2 comp	ounds from With the lab du	TPH-D a te to the	tion limit of 50.0 pCi malysis. FH acknow radi characteristics. mr 89,90 — Total 31,	g for C-14 ledges that	Report kerosen holding times (k	ess than 14 da 	tys) may not	S=Soil SE=Soliment SO=Solid Si≈Sledge W = Water	
TAHLBERG Z.C.	11/10/507-263	Received By/Stor	BERG Ricke	ne/lime    7.72	30 53_	Nickal 63; Nep	Auginty (						O-Oil A-Air DS-Orana Solid Oil-Orana Ciqu T-Tipana W3-Wipe L-Liquid	
Retinquished By/Removed From	7-03 1000	Received By/Stor	BERG RECO	te/Time [c	200 3								V=Vegetation X=Other	
R FAHLBERG RA	1000 7.2.03	Received By/Stor							<del></del>			Date (Times	<u> </u>	
LABORATORY Received By SECTION	& Herd			T	itle CXXD	·II					7/8/	Date/Time	30	
FINAL SAMPLE Disposal Me	thod O			· · · · · · · · · · · · · · · · · · ·			sed By				₹-1	Date/Time		

# **WSCF** ANALYTICAL RESULTS REPORT

Attention: Project:

Steve Trent F03-006: 200-PW-2/PW-4

Group #:

WSCF20030851

		oject.		1 03-	000. 2001	2/2 ** *								
San	nple#	Client 1D			CAS#	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze Sample Receive
W03	0000584	B17490	F03-006	TRENT	12587-48-1	Alpha by liquid scintillation	SOLID	LA-508-421	U	1.20	pCi/g		1.9	07/01/03 06/30/03 06/30/03
W03	0000584	B17490	F03-006	TRENT		Alpha error by LC	SOLID	LA-508-421		385	%		0.0	07/01/03 06/30/03 06/30/03
W03	0000584	817490	F03-006	TRENT	12587-47-2	Beta by liquid scintillation	SOLID	LA-508-421		8.40	pCi/g		2.8	07/01/03 06/30/03 06/30/03
W03	0000584	<b>B</b> 17490	F03-006	TRENT		Beta error by LC	SOLIO	LA-508-421		85.0	%		0.0	07/01/03 06/30/03 06/30/03

MDL=Minimum Detection Limit

U - Analyzed for but not detected above limiting criteria.

RQ=Result Qualifier

DF = Dilution Factor

· \* - Indicates results that have NOT been validated;

Report W004/ver. 5.1

Ground Water Protection Program

# LIONVILLE LABORATORY INCORPORATED SAMPLE RECEIPT CHECKLIST

JENT: TNU- HANFORD

rchase Order/Krojett: 200 -PW. 2/200/PW-4-OU

DATE: 7/8/03

F# SOW# / Release #: F03-006

boratory SDG #:

03076 752

TE:	ALL ENTRIES MARKED "NO" MUST BE E	XPLAJMED II	Y THE COMM	ENT SECTION	١.
1.	Custody seals on coolers or shipping container intact, signed and dated?	D/Yes	□ No .	D N/A	see Comment #
2.	Outside of coolen or shipping containers are free from damage?	D) es	D No	□ N/A	D see Comment #
3.	Airbill # recorded?	□ Yes .	D No	□ N/A	See Comment #
4.	All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid)	Yes	□ No	D N/A	□ see Comment#
5.	Sample containers are intact?	☑ Yes	□ N <sub>0</sub>	□ N/A	□ see Comment #
6.	Custody seals on sample containers intact, signed and dated?	□Xes	□ No.	□ N/A	□ see Comment #
7.	All samples on cocreceived?	□ Xes	□ No	□ N/A	D see Comment #
8.	All sample label information matches coc?	13 Yes	□N <sub>0</sub>	DN/A	see Comment #
9.	Laboratory QC samples designated on coc? (QC stickers placed on bottles?)	□ Yes	DNO.	D N/A	See Comment #
10	Shipment meets LvLl Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)	D Yes	□ N <sub>0</sub>	D N/A	☐ see Comment #
11	Where applicable, bar code labels are affixed to coc?	□ Yes	□ No	N/A	🛘 see Comment #
12	. coc signed and dated?	□ Yes	□ No	□ N/A	See Comment
13	. coc will be faxed or emailed to client?	<b>⊠</b> Yes∘	□ No	D N/A	D see Comment
14	. Project Manager/Client contacted concerning discrepancies? (name/date)	r □ Yes	□ N <sub>0</sub>	DYNIA	🛘 see Comment

Cooler # / temp (°C) and Comments:

:RC-01-041 1°

Laboratory Sample Custodian:

Will Hung